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Abstract: This paper argues that critical public health should reengage with public health as practice by drawing on versions of Science and Technology Studies (STS) that 'de-centre the human' and by seeking alternative forms of critique to work inspired by Foucault. Based on close reading of work by Annemarie Mol, John Law, Vicky Singleton and others, I demonstrate that these authors pursue a conversation with Foucault but suggest new approaches to studying contemporary public health work in different settings. Proposing that we 'doubt' both the unity of public health and its effects, I argue that this version of STS opens up a space to recognise multiplicity; to avoid idealising what is being criticised; and to celebrate or care for public health practices as part of critique. Finally I oppose the view that considering technologies, materials and microbes leads to micro-level analysis or political neutrality, and suggest that it allows us to reframe studies of public health to account for inequalities and to draw attention to weak or retreating states, active markets and the entangled relations of humans and non-humans across the world.

Introduction

Current discussion of the concept of posthumanism invokes a wide range of authors, including those who 'de-centre the human' as a result of their interest in technologies and materials. Generally located within Science and Technology Studies (STS), the work of Annemarie Mol, John Law and Vicky Singleton addresses the entangled relations between humans and non-humans of different kinds, including public health technologies and those who use them. In this paper I explore the theoretical and methodological value of such work for those developing critical perspectives on public health. Rather than weapons to use against contemporary public health I argue this literature offers us tools for new engagement. In the paper these tools will be summarised as different forms of doubt: doubt in the unity of public health, doubt in its effects, and doubt in the strength of the state that is its traditional sponsor. Before expanding on these arguments, I will start by locating them in relation to current interest in 'posthumanist' theory and previous work that draws on Michel Foucault.

Like STS, posthumanist theory is reflected in only a scattering of references in *Critical Public Health*. In a recent commentary Rock et al (2014) pull together diverse theoretical traditions including 'Actor Network Theory' (associated by the authors with Bruno Latour, Michel Callon and John Law) and the concept of 'enactment' (associated with Mol's book *The Body Multiple*). In her broader account of 'post anthropocentric thought' Braidotti (2013) similarly draws heavily on STS though she makes more reference to feminist work associated with Donna Haraway, anthropologies of technology and Foucauldian studies of biopower under this heading. Though both Foucault and these authors see human subjects as emerging in relation to techniques and practices, one could challenge the inclusion of Foucauldian work as part of STS, which is as interested in the 'making' of objects as subjects (though cautious about working with a strict division between the two). A more serious problem with Braidotti's characterisation of the literature is her criticism of 'STS' as doing only 'analytical post-humanism.' She argues that work she understands as 'STS' fails to offer 'sustained political analysis of the posthuman condition' because of the 'high degree of political neutrality it expresses about the posthuman predicament' (p42). This is a crucial point for readers of this journal and others seeking critical perspectives but I do not recognise it as a good description of the work of Mol. Braidotti makes only one brief reference to Mol's work, but I argue Mol and others like her are important representatives of this tradition if we wish to develop new critical work in public health, and that they are rarely neutral.

I start this paper with a close examination of the relationship between Mol and Foucault, who is one of the most commonly cited theorists in this journal (with more than double the number of citations as Bourdieu, Giddens or Marx). A simple reason for this may of course be the emphasis Foucault puts on public health in his writing. Though suspicious of its disciplinary effects Foucault gives great importance to a field that often appears a poor relation to clinical medicine. Charting the close

relationship between public health interventions and the growth in liberal government, he helps give coherence to activities as diverse as tackling sanitation or pollution and asking people to change what they eat, drink or do. As the work of David Armstrong (1993, 2014) shows, though public health may increasingly focus on 'behaviour change' historical continuities can be identified in the use of concepts or practices of 'risk' 'surveillance' and 'discipline.' Where Foucault showed these informing material interventions such as architecture and urban planning, these may now be explored in relation to other technologies of modern public health including leaflets, websites and apps. Such interventions may then be seen as expressions of both population thinking and what one author calls a 'deeply punitive medico-moral discourse' (McNaughton 2011) that is often assumed rather than shown to have disciplining effects on the individual.

Though Foucault offers powerful weapons for analysing the practices of public health as part of what he calls 'advanced liberalism', his historical account necessarily makes broad links across different locations and times. The very first argument I take from Mol is that such fields are rarely as monolithic as might appear. This argument is clearly made in *The Body Multiple*, which is probably the most influential of Mol's works to date. Explaining how this book and her *Logic of Care* develops a conversation with Foucault, I argue that doubting the unity of public health - attending (in Mol's terms) to its multiplicity - is likely to produce quite different accounts from work that starts from Foucault's account of governmentality. In my second section, I draw on a broader range of work by Mol and her collaborators to develop doubts about the consequences of public health in practice. We should acknowledge not just that such interventions may be diverse, but that their effects cannot be simply read off from the interventions or policy. Effects have to be identified through studies of practices, which draw together and create subjects, objects, humans and non-humans in ways that go beyond surveillance and discipline. Moving across studies of technologies for providing clean water and heart health in specific communities, I elaborate on the development of this strand of STS as a way of attending to the different and often unequal outcomes of public health interventions. In my final section I suggest that the multiple and relational ontologies of these authors can inform new forms of critical engagement with the local and global inequalities that shape contemporary public health work. Studies of 'healthy' eating for humans and animals, and of commercial products promising clean water or good nutrition, require attention to the relative weakness of different states and the powerful networks that make global markets, as well as the differences they create between citizens and consumers in different locations. Attending to these complexities does not make for neutrality, but allows for *more* critical responses to some public health initiatives and also encourages us to celebrate, even ally, with others that are open to diverse experiences and situations.

Reading Mol's *Body Multiple* and *Logic of Care* as a conversation with Foucault

Mol's *The Body Multiple* (2002) is a major contribution to studies of bodies and their diseases, clinical knowledges and practices. Written in parallel texts, it counterpoises observations of the way in which atherosclerosis is 'enacted' in a hospital with theoretical reflection on the meaning and use of such ethnographic studies. Taking aim at a perhaps comfortable division of labour between a humanist medical sociology that documents 'illness experience' and a medical concern with 'disease,' Mol shows how different specialisms produce or 'enact' different bodies and versions of atherosclerosis through practices such as talk with patients, observation, laboratory analysis and surgery. Where medical sociology documents patient voices, Mol puts the practices, tools and techniques of the hospital at the centre of her discussion. In developing a new account of 'clinical work' and the ways it produces disease, she explicitly built on the writing of Foucault, especially his *Birth of the Clinic* (1976).

Mol also offers numerous reflections about points of similarity and difference between her writing and work inspired by Foucault. Citing David Armstrong (1988), whose discussion of public health also drew extensively on Foucault, she suggests a common interest in the material practice of medicine and the ways in which this shapes understanding of the body, for example the development of pathology out of the organisation of 18th century hospitals. However, Mol suggests – putting her own work into Foucault's historical framework – that medicine may no longer relate to pathology as foundational. Her own approach is to 'doubt' (Mol 2002 p47) this rather than argue about the ill effects that might follow.

Foucault's historical vision meant he tended to characterise 'regimes' of knowing as replacing each other over long periods. Mol's identification of 'multiplicity' within the hospital suggests different regimes can and do coexist in the present, though they may certainly compete. Indeed she sees 'clinical' ways of working as under threat. Though Mol insists the book 'does not engage in criticism' she does argue:

> Where a so-called scientific rationale (be it that of pathology, pathophysiology or, most likely at the moment, that of clinical epidemiology) is brought into practice, with sufficient effort it may well come to dominate the other modes that are already at work. But this does not so much improve medicine as impoverish it. (p182)

Why does Mol wish to defend clinical medicine – a very different project from that of Foucault? The answer is that unlike other ways of doing medicine she suggests clinical work is willing to live with the kinds of multiplicity that she identifies. Clinical ways of working start from patient histories and work through 'adaptable subjective evaluation rather than requiring objectified figures' (p183). Mol does

not need to go back to patient stories or perspectives to find ways to value individual experience, but sees sensitivity to difference as emerging in the practices of (some) clinical staff.

Though claiming to eschew criticism, Mol is unapologetic about having a political message. She questions versions of medical reform that emphasise 'patient autonomy' and position patients as a consumer or citizen whose 'will and desires are supposed to be set, predetermined and clear' (Mol 2002 p169), seeking to make space for more nuanced experiences and for caring relations. Moving away from a 'politics of who' she calls for 'politics of what' that can attend to dissonant versions of 'the good life' 'the diverging and coexisting enactments of the good' (p176). Clinical epidemiology fails to do this, in her account, for 'instead of being staged in a theatre of discords, differences are flattened out onto a spreadsheet,' (p174).

In her more recent and less theoretical book - *Logic of Care* - Mol (2008) develops this argument. Though references to Foucault are here relegated to endnotes, her links to him are arguably stronger for she chooses to focus not on the object (disease) but on the formation of subjects by different 'logics' in healthcare, highlighting practices that enact people as 'citizens' 'consumers' or 'patients'. Again she aligns with a 'clinical' view that approaches people as patients needing care, rather than citizens or consumers who exercise choice. This book thus draws a distinction between the 'patient' and 'citizen', where Foucault's discussion of medicine in the advanced liberal state tends to collapse the two.

Where does this leave critical public health? I have noted Mol's concern about the rise of 'clinical epidemiology' – but it seems to make little sense to ask public health practices to become more sensitive to 'patients' as individuals. Public health work promises to preserve and improve health for a collective, and draws fundamentally on epidemiology as the science of populations. We cannot just ask it to be more like clinical medicine. But we should be prepared to recognise that it is 'multiple' in practice. To apply Mol's thinking from *Body Multiple* or *Logic of Care* would then involve looking for different ways of doing public health, and doubting whether any single one dominates. Indeed this approach is evident in two areas of research where Mol has worked with other authors, including writing with Law on foot and mouth disease (based on work by Law and Singleton)[i], and secondly in collaborative research on eating practices. I return to these examples later, but will first draw on an earlier piece by Mol written with Marianne De Laet, which has a slightly different approach, and work by Vicky Singleton, to propose a second type of 'doubt' as a tool for a post-Foucauldian critical public health.

Doubting and loving

In this section I consider how Mol has addressed public health explicitly, in a classic paper co-authored with Marianne De Laet. The paper has an unusual form for it is presented as a celebration of a Zimbabwean water pump as public health intervention (De Laet and Mol 2000). Like clinical work the 'bush pump' is tolerant of difference, and thrives on it. Its parsimonious design means it is meant to be easy to install and repair in different rural sites across Zimbabwe. It is cheap, attractive and welcoming, embodying a quiet reproach to public health technologies that are too rigid to allow local adaptation. It is also 'public' in at least two senses, being produced without patent and promoted as part of government sanitation policy: De Laet and Mol argue that its spread helps draw together the Zimbabwean nation. The authors ask us to accept the pump as an actor, but their primary interest is not identifying pump's disciplinary effects, nor critique.

> In the critical tradition scholars approve or disapprove of technologies, people, situations, arguments. This makes sense if there are clear-cut points of contrast from which to judge. But this isn't always the case. (p253)

Rather than offer contrasts, they choose instead describe a single technology, to 'be moved by' the pump, to 'love' it.

The paper demonstrates the STS preference for putting technologies at the centre of analysis, but it becomes a story about the pump as an effect of work by communities that adopt it. The authors insist that for the technology to spread and be useful it has to be flexible (they talk about its 'fluidity'). Pumps must insert themselves itself into a wider set of relationships that mediate their effects. They note for example that the pump's status as a public health technology rests on demonstrations of reduced counts of E.Coli bacteria in water produced by the pump. Yet these reductions are always relative (a bush pump may be better than the alternative even when the E.Coli load remains high) and the relation between E.Coli and health also 'depends not only on the number of E.Coli but also on who(se) they are' (De Laet and Mol 2000 p243). Local people may harmonise with the micro-organisms in a well that would cause illness in a stranger.

So far the paper appears to fit with a posthuman framing that pays attention to relations between materials, animals and people and celebrates a fluid object. 'Our actor, the Bush Pump, goes to show once again that actors do not have to be humans' (2000 p253). Yet the pump is not the only hero. For their story about the distributed achievement of the water pump is learned in part from a man characterised as its 'modest innovator'. In celebrating the bush pump the paper also celebrates the man who designed it and continues to negotiate for its use – a man called Peter Morgan. Morgan

is presented as a careful student of the communities within which the bush pump might find a home. Though hoping in public health parlance to achieve 'behaviour change' he narrates his work as making the technology ready to fit in with existing practices and relations in these communities. The pump is designed to be appreciated. Where a Foucauldian account might well narrate this as a technology that brings the state into everyday life, Morgan is clear that such top down interventions can fail, and must work hard to generate attachments that ensure their use.

> In Zimbabwe, village level participation is actively encouraged in all water and sanitation schemes. It is now well established that without this participation, communities cannot generate the commitment for maintenance as they do when they are involved. (Morgan quoted De Laet and Mol 2000 p234)

The final part of the paper acknowledges the times when a 'community' fails to materialise around a pump, or the pump proves 'too weak… [or] insufficiently attractive to become a centre' (p245). Some pumps are not maintained and fall into disrepair. Others enter private ownership, being maintained by a small number of families. 'Such a change might make rural Zimbabwe look different, made up of units that are different from those the governments has been seeking to reinforce,' (p246). Even so, Morgan continues to embrace the strategy of abandoning control, allowing for surprises, involving and making room for users. His visits to water pumps are not for maintenance, but to learn from the way the pumps have evolved in the wild.

The attempt to preserve openness about the likely effects of a technological intervention is characteristic of STS, and is the second kind of 'doubt' I want to recommend for critical public health. For all its celebration of the bush pump, De Laet and Mol make space for the possibility that the pump will have very few or unexpected local effects. As others have noted, this is actually a relatively common outcome for public health interventions (Lindsey 2010, Cohn 2014). Redfield (2016) notes that access to clean water in Zimbabwe is still a problem. As discussed later, he describes the development of new commercial technologies as a result, which are framed much more around individuals or families than the communities that were so important in the bush pump story. We should not assume that even such a loveable technology will be embraced in practice.

A second example helps illustrate the need for doubt about the outcomes of public health, but makes some important additional points about how this should inform critical work. Though not a direct collaborator of Mol, Vicky Singleton has frequently written together with John Law, and her work develops many of the same ideas as his work and Mol's. In a particularly useful piece for this paper, she explicitly addresses the difference between an account of community public health that starts from Foucault and one grounded in this strand of STS. Sharing Mol's interest in practices, but refusing to celebrate them on this occasion, Singleton (2005) starts with a policy document *Saving Lives* that

called for public health to involve communities, to tackle inequalities and 'empower' lay people in England and Wales. As she observes, an avowedly Foucauldian analysis of this document starts by drawing attention to the new forms of discipline and surveillance that this may involve.

> Attempts to `emancipate' or `empower' marginalised groups… based on humanistic, neo-liberal principles, may be regarded as ever more complex ways of defining, regulating and normalising the members of such groups. (Petersen and Lupton 1996, quoted in Singleton 2005 p780)

However expressing her own readiness to appreciate public health interventions Singleton argues:

> The New Public Health Policy can be seen as a move in the right direction for health care. It is an attempt to develop health policy and practices sensitive to the complexity of the relationships between the state and individuals and to the multiple meanings and causes of 'good health'. (Singleton 2005, p774)

Her reading of the policy document is thus full of promise but this does not mean she is not prepared to be critical. In an ethnographic study of a community cardio-pulmonary resuscitation project in a rural area of England, she observes that people may certainly be excluded and stigmatised for their failure to participate. Sounding like a Foucauldian, she observes "active citizens are being made good and inactive citizens are constructed as 'stupid and ignorant', selfish and bad" (p778). But she argues that these effects are made in the practices or enactment of the policy rather than necessarily contained within it. It is the transposition of the policy into the material networks of community action, defibrillators, village halls, tea, biscuits, cars and volunteers that creates such exclusions. Practices appear as less creative, more conventional and more conservative than the policy itself. This is a provocative claim, and opens up intriguing possibilities for the study of public health as not only internally divided, but also defensive and often unsuccessful. In making this proposal, I feel close to Bell and Green's (2016) call for more 'nuance and specificity' in accounts of public health as responsibilisation within a broader set of processes of neoliberalisation. In my final section I will pick up this concern using some observations by Mol herself on the limits of the 'neoliberal critique,' as one which overlaps but is certainly not identical with a Foucauldian one, using discussions of 'good food' for animals and humans to illustrate the argument.

Weak states and private/public health

Foucault's critique of public health is tied up with its close connection with the state, which frames a population and helps develop the practices of advanced liberalism. As Bell and Green (2016) observe, the term 'neoliberal' may be used to describe governmental processes where the focus is on the creation of specific subjects, but also invokes privatisation, the expansion of global markets and the rolling back of the state. I have already discussed how Mol may draw different conclusions from those analyses of public health that see it as a form of governmentality. In this final section I want to explore how we can account for the expansion of commercial activity in the context of weak or retreating states and local and global inequalities.

Mol's most recent work on eating proceeds by a combination of identifying differences (as in *The body multiple*) and celebrating particularity (as in the bush pump). Together with several collaborators she has pursued ethnographic studies of eating practices and interventions in settings including nursing homes and the offices of dieticians and health coaches. They contrast different ways of 'doing' nutritional advice that simultaneously avoid a different critical confrontation – and its dismissal of situated knowledges – and appreciate the absence of such critique in informants' practices. Writing with Else Vogel, for example, Mol observes that some professionals encourage people to cultivate pleasure in eating, 'crafting situations and meals that give joy' rather than seeking ever-stronger self-discipline (Vogel and Mol 2014). They hope to support such efforts which are perhaps the public health equivalent of clinical sensitivity, to 'strengthen and sharpen the theoretical creativity of our informants and help their insights to travel beyond their daily practices' (p306).

Vogel and Mol (2014) explicitly address the question of whether they have been 'critical' enough in ways that attend to local practices and the networks in which they are embedded. First they note the weakness of public health – its enforced modesty if you like. Public health workers confront food practices that are shaped by intensive marketing of unhealthy and processed food, where governments seem unable or unwilling to act. All that remains for dieticians is 'the possibility of addressing consumers and urging them to make healthy food choices' (p306). But the injunction to listen to your body, to embrace rather than resist the pleasures of eating, may support those markets.

> None of this is beyond criticism. Enjoy your food resonates with the advertisement messages of food industries, which makes it easy to be misused. What is more, not all possible food pleasures are being endorsed. Calm enjoyment is being fostered and wild ecstasy is not. (p314)

Nodding to the disciplinary critique of public health they acknowledge 'a very thin line between liberating the pleasures of the body and imposing yet more obligations on the caring self,' (p315), but

they say they want to support what seems to them a better version of public health than some others. 'It is just too easy to write in a social science journal that encouraging people to take pleasure from their food is nothing but another neoliberal disciplining strategy' (p315).

This example is helpful to show how critical engagement with public health may involve new positions that are not simply set against 'government', 'commerce' or an alliance of the two described as 'neoliberal'. This argument is also made by Redfield (2016) in his discussion of new ways of providing clean water in Zimbabwe, developed as part of his own critical appreciation of the bush pump article. Redfield gives us the example of the LifeStraw®, the product of a Norwegian firm based in Switzerland, which he sees as a partial response to the weakness of the nation state. The LifeStraw® he tells us is a product of commercial efforts to find new organisational forms that 'mix ethics with finance.' Though it is initially sold it may also be given away, while the company makes money from trading the 'carbon' saved if families no longer boil water to kill bacteria – in a global carbon reduction market. Like Vogel and Mol, Redfield wants to resist any easy criticism of this scheme as 'neoliberal' (Redfield 2016, p16). He sees in the company an orientation to people as consumers, which makes them attentive to their needs. 'To be successful humanitarian goods must recognise their users, adjusting to the reality of their worlds even as they seek to change them' (p15). Like Mol's sense of the clinical, Redfield finds sensitivity to difference in commercial design. He wonders if it is possible to see in the case a positive alternative vision of water infrastructures that keeps in view the specificities of the product, the limited action of the state in which it is distributed, and the promise as well as pitfalls of the market.

Redfield treads the tight rope of appreciating a commercial product without appearing its dupe, but this allows him to extend his analysis beyond the local practical accomplishment of a set of relations, to include more global networks. Two final examples show how Mol and her colleagues might do something similar, moving away from 'micro-level' analysis of relations to connections across national borders. The first presents itself as a debate with Jane Bennett, a key author in studies of 'new materialism.' Picking up on Bennett's interest in fatty acids known as omega-3 as an example of the interrelations between objects and humans (see Bennett 2010), Abrahamsson, Nertoni, Ibanez-Martin and Mol seek to address a number of issues. They acknowledge her identification of omega-3 as an object that alters human mood and cognition, but question her way of attending to 'science' in order to substantiate her claim (Abrahamsson et al 2015). For example, instead of focusing on supposedly generalized results, they argue it is important to pay attention to 'materials and methods' sections and the research practices they unfold. In fact, the studies Bennett relies on to make the argument that omega-3 is important were conducted in prisons because of the easy dietary control they afford; while the studies can show correlations in changes in nutrition and behaviour for an already deprived and malnourished group, they are not so easily extrapolated to 'humans' in general. The authors go on to decry the lack of attention to wider issues behind omega-3 use in rich countries. The production of

omega-3 is reliant on a scarce natural resource, they observe, and its conversion into nutritional supplements involves the export of fish from the global South. As well as smoothing over the contribution of nutritional inequalities to the production of evidence, 'Bennett talks about omega-3 without directly concerning herself with such contentious issues as the inequalities between well-fed and under-nourished people or the startling depletions of fish stocks worldwide' (Abrahamsson et al 2015, p13). While sharing Bennett's interest in material-human relations, they use the focus on 'relationality' and difference to put politics explicitly into the discussion of nutritional supplements.

The final material for this theoretical debate is pigswill, an unpromising topic perhaps but an important part of the story of the foot and mouth outbreak studied by Vicky Singleton and John Law. Pigswill is scarcely commercial and never branded. It is not produced through flows of materials from the South to the North like omega-3, but from the 'metabolic surplus' existing in rich countries with significant volumes of food waste that can be recycled as animal feed. In seeking to describe its politics Law and Mol (2008) narrate pigswill in posthuman terms, for it mixes humans, animals, microbes and machines. One story might then be about pigswill as a risk to public health. Though countries try to control the movements of meat and microbes across their borders, they do not always succeed. If infected meat finds its way into the food chain, careless use of pigswill made from food waste may allow the infection to spread to live animals. The failure to boil pigswill on just one farm can be blamed for an outbreak of the disease and the decision to slaughter millions of animals. Yet, Law and Mol demonstrate how attention to a mundane object can open up more critical perspectives on state and market failures, global inequalities and trade flows. 'Boiling pigswill was a political technique that, in a region of plenty, respected and helped to limit food scarcity on a world wide scale' (Law and Mol 2008 p141). Though useful in the context of weak borders, pigswill used local materials otherwise defined as 'waste'. It thus had some advantages over feeding pigs on meal derived from crops produced through 'industrial agriculture', with effects including pollution and reworking of the landscape. In this paper the authors therefore use a relational approach to debate the different 'goods' of public health as well as the complexities of human/non human relations.

Tools not weapons

In this synthesis, I have drawn on relatively scattered work to propose new tools for critical engagement with public health. I have argued that Mol, Law, Singleton and others in STS offer ways of doing social science that encourage us to grapple with difference and resist some of the pleasures of denunciation. Criticising some characterisations of this literature, I suggest that these authors should be read as attempting a conversation with Foucault and his followers. Rather than offer a straight alternative, they respond to and develop his analysis, and relate carefully to the very idea of 'critical work'. Like other

authors in STS - including Haraway (1991) and Latour (2004) - they hope 'no longer to debunk but to protect and care' (Latour 2004 p232). But where Latour (2004) calls for authors in STS to 'review their equipment and training' 'like every good general,' Law (2008) explicitly resists military metaphor. Rather than rearming, in his work and collaborations with Mol and Singleton, Law seeks methods or tools for a different kind of engagement. In this final section I will draw on this broader discussion in STS and previous work in this journal, to summarise the potential of this particular type of posthumanism to inform new accounts of public health.

In this paper I have proposed the work of Mol as a rich source of inspiration for writing on public health. Though we may not always find equivalents for the practices that she celebrates in clinical medicine, we can, like Mol, start from an assumption that public health work is characterised by multiplicity, that it brings together different practices and knowledges. This helps avoid any overly monolithic views of public health or indeed the state or governmental regime – views that would imagine the state as a stable and given entity rather than a dynamic set of contingent practices. In STS relations between knowledge practices, interventions, humans and non-humans are conceived as fragile: it is common to start the analysis with doubts as to whether these networks can be held together across space and time, and whether any practice will have a durable or fixed character (Law 2008). For example though epidemiology may appear important in accounts of the history of public health it may be useful to characterise different ways of doing epidemiology, or challenges from psychology, marketing or economics. Instead of positioning ourselves as external critical voices, attending to varied practices in the field may allow social scientists to become allies in reimagining public health work. Very similar suggestions have been made by other authors in STS (see Haraway 1991 and Barad 2007 on the method of diffraction, or Latour 2007 and Marres and Lezaun 2011 on material politics), but Mol and Law offer excellent examples of this analytic approach. Not all public health interventions look as 'modest' or as loveable as the bush pump, but Mol may inspire us to go looking for those that are.

The second set of doubts discussed in this paper related to the effects of public health interventions. I suggested that work in STS encourages greater openness about the possible results of public health than expressed by Foucauldian scholars, who can appear quick to assume 'governmental' effects from very diverse interventions (e.g. Petersen and Lupton 1996, McNaughton 2011). When they acknowledge uncertainty about whether public health can foster discipline, they may celebrate 'resistance' (e.g. Petersen 1998, McLean 2011, McPhail 2013). In the STS literature unexpected responses to policies or technologies may also be celebrated, for example as forms of creative appropriation or domestication (e.g. Silverstone et al 1992, Lie and Sorensen 1996, Carter et al 2013, Weiner and Will 2015). Paying attention to resistance, appropriation and domestication may produce more satisfying accounts of the politics of objects than the focus on discipline, but such themes can still reduce the force of that initial doubt about the effects of interventions and the possibility of

indifference (Lindsey 2010). Though not sharing the prominence of De Laet and Mol's bush pump paper, Singleton's commitment to questioning the effects of policy – and readiness to see policy as potentially more sensitive or emancipatory than practice – reminds us to focus on the different ways in which people experience interventions or resist them. While most attention has been on public health 'technologies of the self' as normalising and universalising, some recent work has argued that some groups are found incapable of such self-discipline and subject to more punitive responses, stigma and abjection (e.g. Thompson and Kumar 2011, Barcelos 2014). Work on public health can connect powerfully with other scholarship addressing inequalities and injustice (e.g. Tyler 2013), showing how local negotiations may create exclusions in practice, even when such work starts from analytical openness about the distribution of goods and bads.

In expressing our own willingness to 'love' elements of public health as well as the potential importance of abjection, we might also more readily engage with a range of emotional responses to governmental interventions and the objects that public health makes problematic (including cigarettes and drugs as well as 'unhealthy' foods). Mol's work on healthy eating is a useful reminder that we need to account not only for discipline but also for pleasure, the preferred terrain of the market, but objects also produce emotions like disgust. Though there was not space to develop this argument in detail here, it is worth noting that while STS is cautious about drawing clear lines between subjects and objects, its attention to objects is different from Foucauldian work. As Mol says in defending herself against humanist critics:

> It may well be that … [Actor Network Theory] fails to protect humans from being treated as "mere things", but it offers something else instead. It opens up the possibility of seeing, hearing, sensing and then analysing the social life of things – and thus of caring about, rather than neglecting them. (Mol, 2010, p255)

So far I have elaborated the need for doubt about the results of public health interventions and more attention to their different objects as well as their subjects. In the third section I highlighted an additional effect of focusing on the 'social life of things' that gets too little attention from those who represent STS as politically neutral. While authors like Mol may be careful about offering 'critique' and resist political slogans, politics is unavoidable if we focus attention on technologies and materials for they are hardly ever equally accessible to everyone. In the discussion of eating for pleasure, the LifeStraw, omega-3 and pigswill I have shown that STS engages with diverse public health practices *and* helps explore the global relations that shape human and animal health. In the markets that supply our food and the regulation and movements of microbes and nutrients we find numerous reminders that public health work is subject to pressures beyond the jurisdiction of any single government. Its practices continually negotiate, produce and reproduce inequalities between different subjects and objects, not

least in contexts where states appear reluctant or incapable of acting on their populations. This sensibility may be less celebrated in STS than our attention to local practice, but is vital for our understanding of contemporary public health.

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[i] Though John Law is often associated mainly with Actor Network Theory as a distinct approach, in the last decade he has frequently written with Annemarie Mol and their work has evolved together, but he is also a long term collaborator with a British feminist STS scholar, Vicky Singleton. In several articles these authors explore how foot and mouth disease was identified and managed by the various agencies, experts and stakeholders including farmers living through the foot and mouth outbreak in the UK in 2001. For another example see Singleton's (2010) discussion of farming practices as offering the potential for more sensitive responses to the disease.